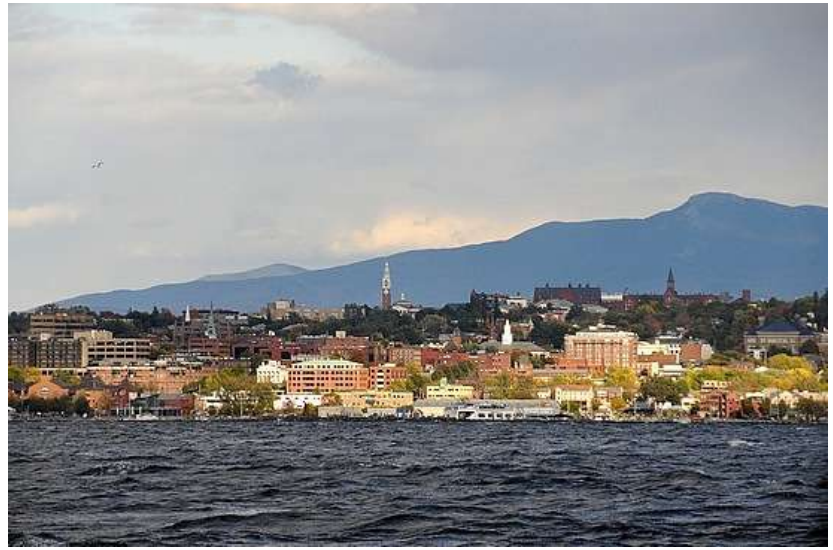


Packaging Design for Seven Generations

A Little Background





Who We Are & What We Believe

“In our every deliberation we must consider the impact of our decisions on the next seven generations.”

-- from the Great Law of the Iroquois Confederacy

Mission in Action



Sustainable Palm Oil



Ingredient Disclosure



Justice and Equity



Transparency



Sustainable Packaging



Environmental Impact



Education

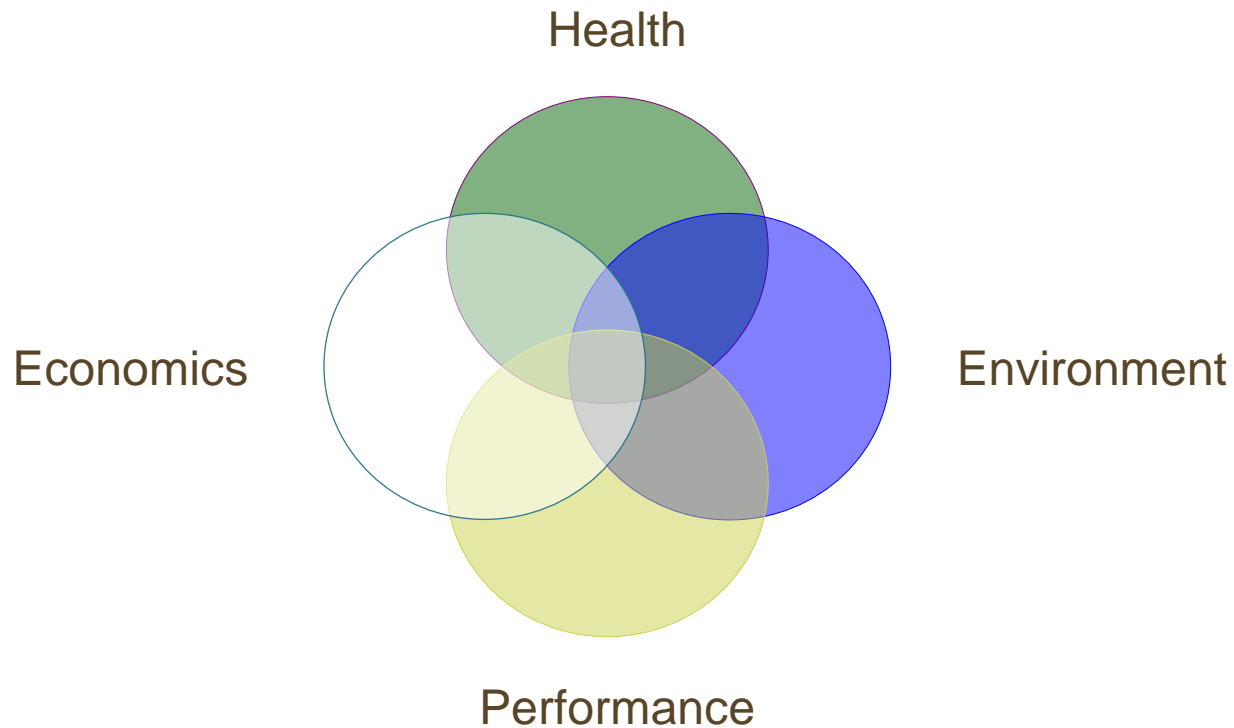


Toxic Chemical Reform



Product and Packaging Design

Seventh Generation's Holistic Approach to Product Development.

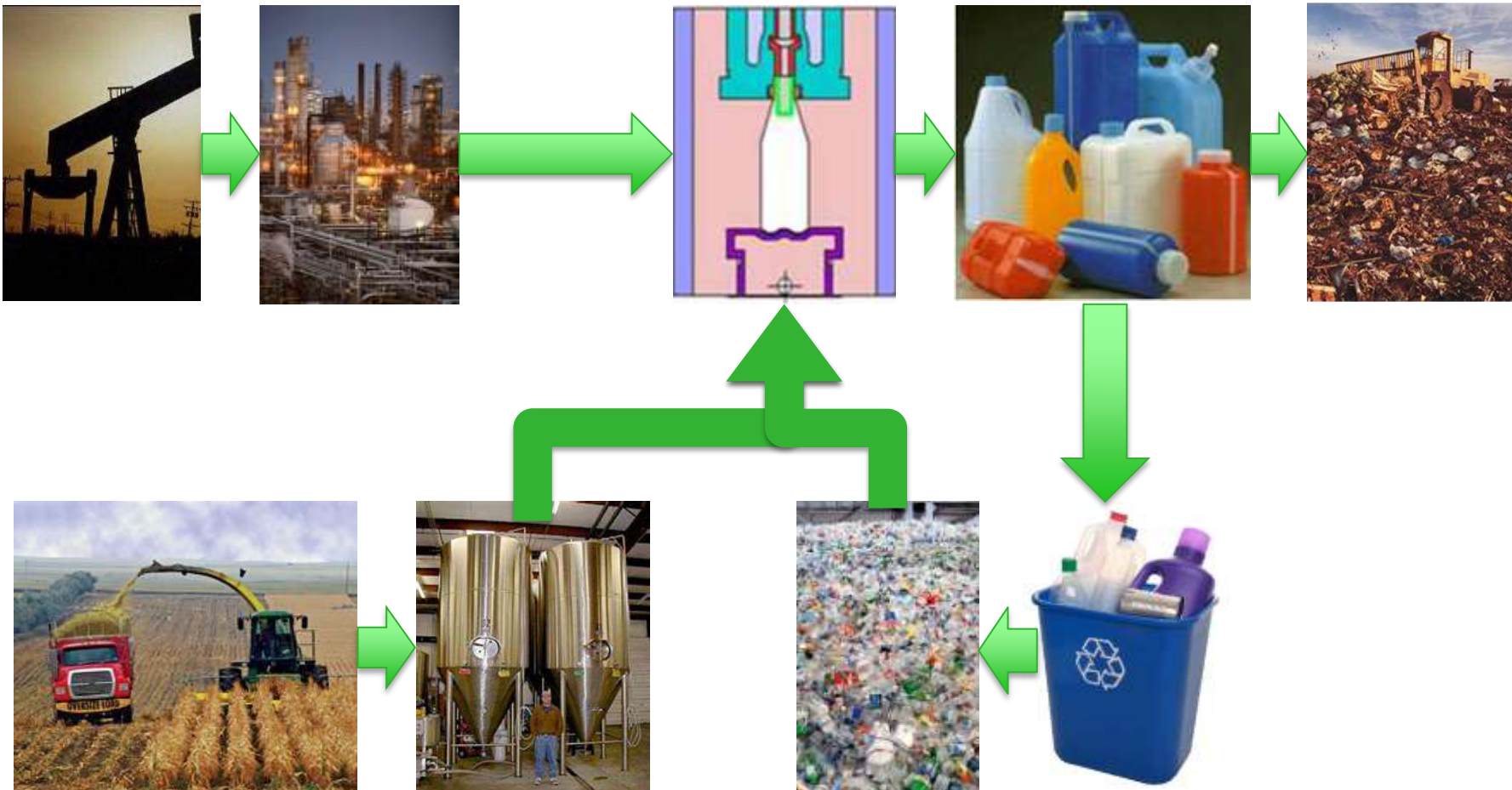


Plastic Packaging at Seventh Generation

- Bottles
- Closures
- Poly Bags
- Labels
- Diaper components
- Wipes



Plastics Life Cycle System Diagram

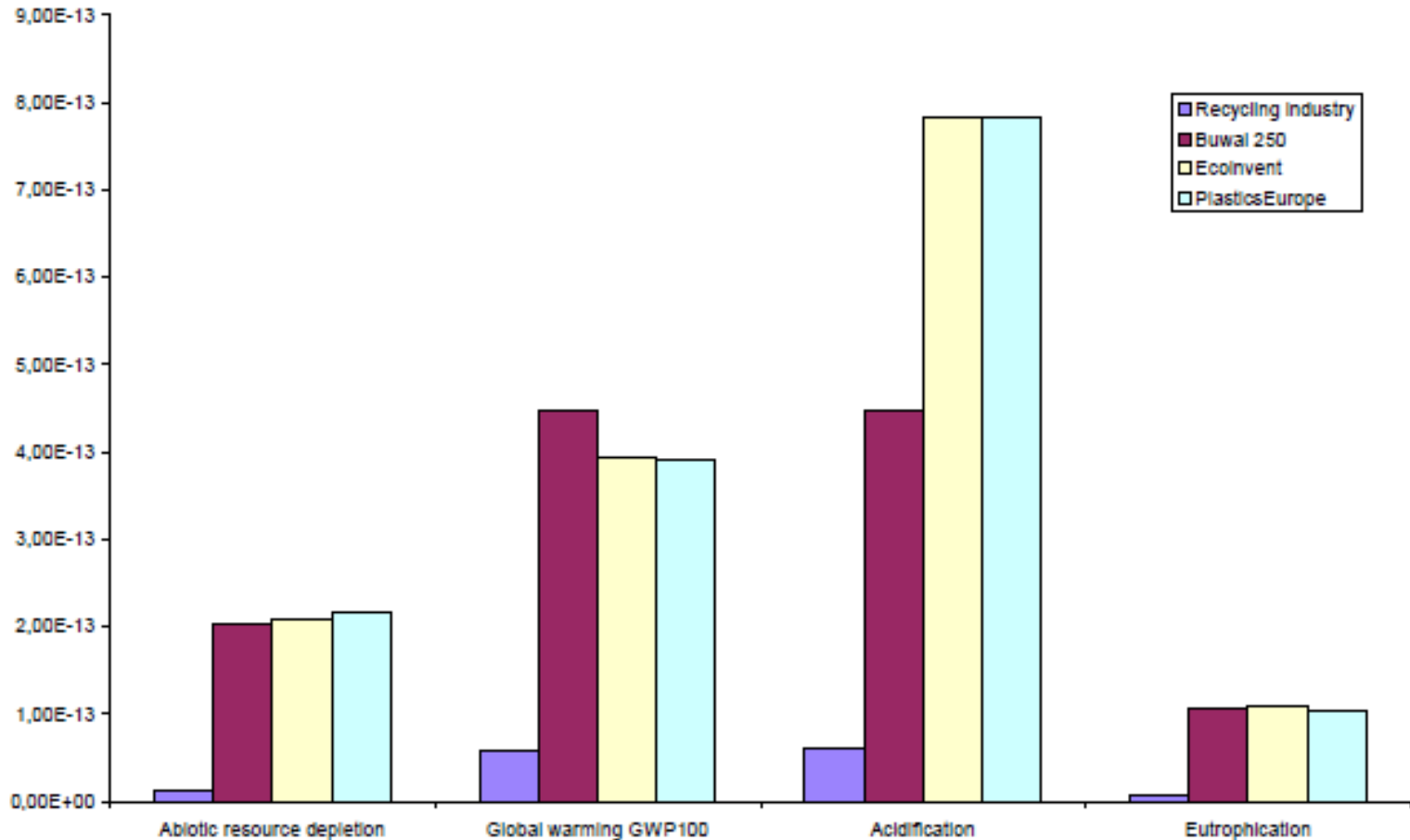


Creating A Plastics Hierarchy

Plastics Production = Petro plastic +
Bio-plastic +
Recycled plastic

Total Impacts = Impacts(Petro plastic) +
Impacts(Bio-plastic) +
Impacts(Recycled plastic)

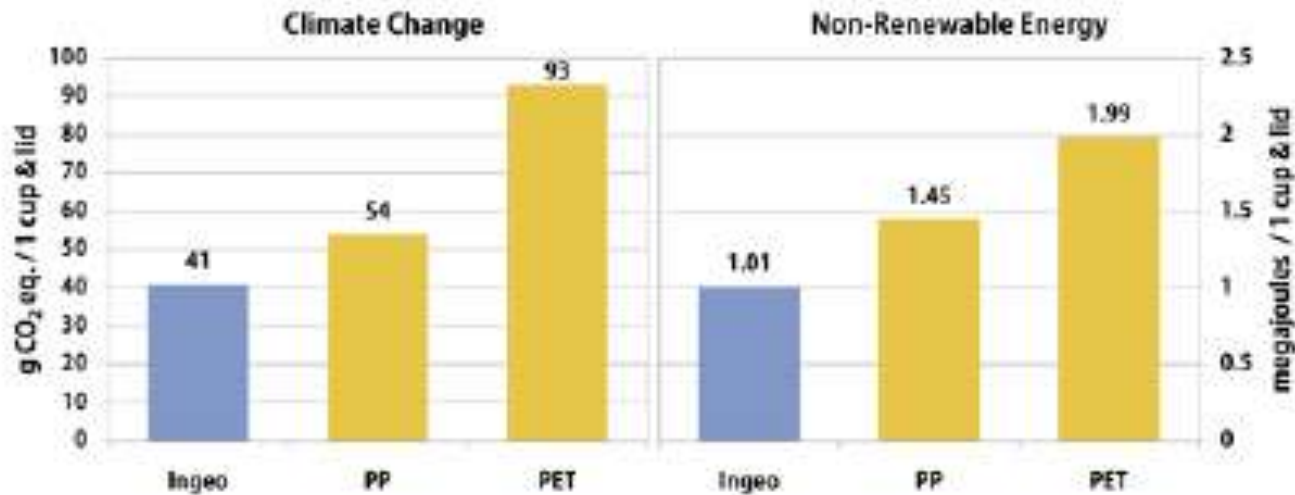
Environmental Impacts of HDPE Manufacturing: Virgin versus Recycled



D. Garrain, et al., 3rd International Conference on Life Cycle Management, Zurich, 2007.

Comparison of INGEO to PP and PET

RESULTS



The results of the averaged scenarios detailed above show that the manufacture and transportation of Ingeo cold cups and lids consume 30 - 50% less energy from cradle to grave than PP and PET respectively, and emit 24 - 55% less greenhouse gases.

M. Binder and L. Woods, Comparative Life Cycle Assessment Ingeo™ biopolymer, PET, and PP Drinking Cups, PE Americas, 2009.

Creating A Plastics Hierarchy

Impacts(Recycled plastic) $\sim 0.2 * \text{Impacts(Petro plastic)}$

Impacts(Bio-plastic) $\sim 0.8 * \text{Impacts(Petroplastic)}$

Total Impacts = Impacts(Petro plastic) +
Impacts(Bio-plastic) +
Impacts(Recycled plastic)

The more recycling, the lower the Total Impacts

Creating A Plastics Hierarchy

Recycled plastic >>>> Bio-plastic > Petro plastic



Bottles



- HDPE instead of PETE – resin energy savings 42%, blow molding 66% less energy.
- What level? - 25% minimum (California Waste Management Board)
- Where does this resin originate?



High Post Consumer Content



80%



80%



80%



76%



76%

And Even Higher...



96%



90%



96%



96%



96%

Caps, Sprayers and Tubs



program supporter

- Extended Producer Responsibility
- Sprayers all plastic, no metal
- Recyclable, does not mean it is recycled



Poly Bags - LDPE



- Diaper bags are 25% preconsumer
- Paper towels, bath tissue are 50% preconsumer
- Tell the consumer: “Please recycle this packaging in plastic bag recycling bins at local retailers where available.”

Poly Bags – Bioplastic / LDPE Blend



- Braskem sugar cane based poly
 - 1KG of petrochemical PE production releases 2.5 KG of CO₂
 - 1KG of bio PE production captures 2-2.5 KG of CO₂
 - Light weighting covers increased cost

Labels



- **BOPP**
- **Association of Postconsumer Plastic Recyclers:**
“PP, OPP, PE, or other label materials that float in water are preferred to all other label materials. Paper labels are undesirable and should be avoided as they increase contamination in the HDPE due to fiber and adhesive carry-over through the reclamation process.”
- **Improved application, quality, durability, appearance**



Thank you!